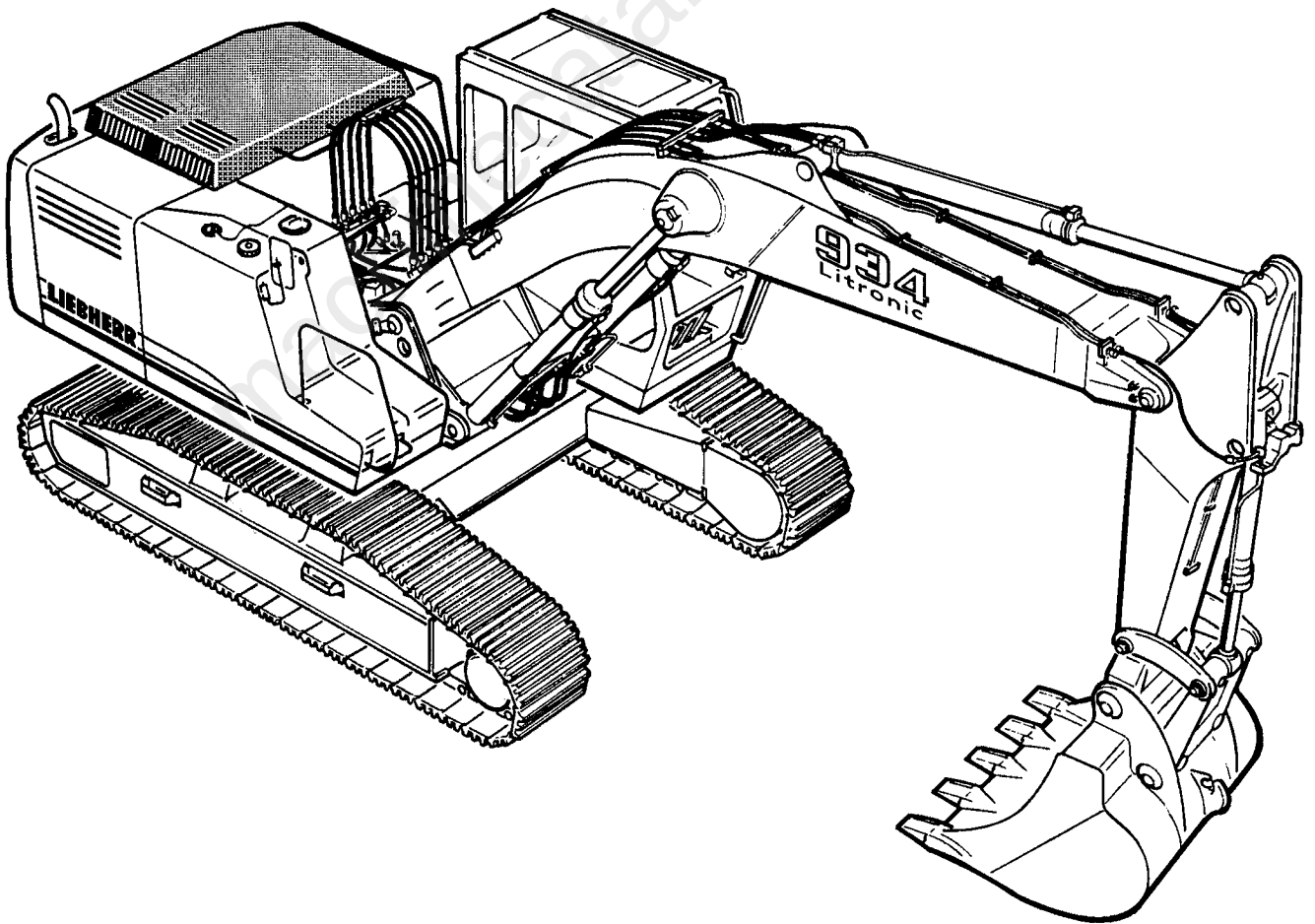


Operation and Maintenance Manual

R 934 B

Litronic



with stick 2,00 m					
Height in m	Under- carriage	Radius of load from centerline of machine in m			
		4,5	6,0	7,5	9,0
10,5	HD-S HD-SL				
9,0	HD-S HD-SL				
7,5	HD-S HD-SL		6,3# (6,3#) 6,3# (6,3#)		
6,0	HD-S HD-SL		7,0# (7,0#) 7,0# (7,0#)		
4,5	HD-S HD-SL	9,8# (9,8#) 9,8# (9,8#)	6,8 (7,8#) 7,4 (7,8#)	4,6 (6,8#) 5,0 (6,8#)	
3,0	HD-S HD-SL	9,6 (12,1#) 10,7 (12,1#)	6,2 (8,8#) 6,9 (8,8#)	4,3 (7,2#) 4,8 (7,2#)	
1,5	HD-S HD-SL	8,7 (13,7#) 9,7 (13,7#)	5,8 (9,7#) 6,4 (9,7#)	4,1 (7,2) 4,6 (7,2)	
0	HD-S HD-SL	8,3 (14,0#) 9,4 (14,0#)	5,5 (9,9) 6,1 (9,9)	3,9 (7,0) 4,4 (7,0)	
- 1,5	HD-S HD-SL	8,3 (13,3#) 9,3 (13,3#)	5,4 (9,8) 6,0 (9,8)	3,9 (6,9) 4,4 (7,0)	
- 3,0	HD-S HD-SL	8,5 (11,7#) 9,6 (11,7#)	5,5 (8,8#) 6,1 (8,8#)		
- 4,5	HD-S HD-SL	8,6# (8,6#) 8,6# (8,6#)			
- 6,0	HD-S HD-SL				

with stick 2,50 m					
Height in m	Under- carriage	Radius of load from centerline of machine in m			
		4,5	6,0	7,5	9,0
10,5	HD-S HD-SL				
9,0	HD-S HD-SL				
7,5	HD-S HD-SL				
6,0	HD-S HD-SL		6,8# (6,8#) 6,8# (6,8#)	4,7# (4,7#) 4,7# (4,7#)	
4,5	HD-S HD-SL	9,4# (9,4#) 9,4# (9,4#)	7,1 (7,7#) 7,7# (7,7#)	4,9 (6,8#) 5,3 (6,8#)	
3,0	HD-S HD-SL	10,2 (11,9#) 11,3 (11,9#)	6,6 (8,8#) 7,3 (8,8#)	4,6 (7,3#) 5,1 (7,3#)	
1,5	HD-S HD-SL	9,3 (13,8#) 10,3 (13,8#)	6,1 (9,8#) 6,8 (9,8#)	4,4 (7,5) 4,9 (7,5)	
0	HD-S HD-SL	8,8 (14,5#) 9,9 (14,5#)	5,8 (10,2) 6,5 (10,3)	4,2 (7,2) 4,7 (7,3)	
- 1,5	HD-S HD-SL	8,7 (14,1#) 9,8 (14,1#)	5,7 (10,1) 6,3 (10,1)	4,1 (7,2) 4,6 (7,2)	
- 3,0	HD-S HD-SL	8,8 (12,7#) 9,9 (12,7#)	5,7 (9,5#) 6,4 (9,5#)		
- 4,5	HD-S HD-SL	9,2 (10,0#) 10,0# (10,0#)			
- 6,0	HD-S HD-SL				

with stick 3,10 m					
Height in m	Under- carriage	Radius of load from centerline of machine in m			
		4,5	6,0	7,5	9,0
10,5	HD-S HD-SL				
9,0	HD-S HD-SL				
7,5	HD-S HD-SL			2,9# (2,9#) 2,9# (2,9#)	
6,0	HD-S HD-SL			4,9# (4,9#) 4,9# (4,9#)	
4,5	HD-S HD-SL		6,9# (6,9#) 6,9# (6,9#)	4,9 (6,2#) 5,4 (6,2#)	3,0# (3,0#) 3,0# (3,0#)
3,0	HD-S HD-SL	10,6 (10,7#) 10,7# (10,7#)	6,7 (8,1#) 7,4 (8,1#)	4,7 (6,8#) 5,1 (6,8#)	3,4 (4,4#) 3,7 (4,4#)
1,5	HD-S HD-SL	9,5 (13,0#) 10,5 (13,0#)	6,2 (9,3#) 6,8 (9,3#)	4,4 (7,4#) 4,9 (7,4#)	3,2 (5,2#) 3,6 (5,2#)
0	HD-S HD-SL	8,9 (14,2#) 9,9 (14,2#)	5,8 (10,1#) 6,5 (10,1#)	4,2 (7,2) 4,6 (7,2)	3,1 (5,0#) 3,5 (5,0#)
- 1,5	HD-S HD-SL	8,6 (14,3#) 9,7 (14,3#)	5,6 (10,0) 6,2 (10,0)	4,0 (7,1) 4,5 (7,1)	
- 3,0	HD-S HD-SL	8,6 (13,3#) 9,7 (13,3#)	5,6 (9,8#) 6,2 (9,8#)	4,0 (7,1) 4,5 (7,1)	
- 4,5	HD-S HD-SL	8,9 (11,3#) 9,9 (11,3#)	5,7 (8,3#) 6,4 (8,3#)		
- 6,0	HD-S HD-SL				

with stick 3,90 m					
Height in m	Under- carriage	Radius of load from centerline of machine in m			
		4,5	6,0	7,5	9,0
10,5	HD-S HD-SL				
9,0	HD-S HD-SL				
7,5	HD-S HD-SL			3,5# (3,5#) 3,5# (3,5#)	
6,0	HD-S HD-SL			4,2# (4,2#) 4,2# (4,2#)	2,7# (2,7#) 2,7# (2,7#)
4,5	HD-S HD-SL			5,0# (5,0#) 5,0# (5,0#)	3,6 (3,7#) 3,7# (3,7#)
3,0	HD-S HD-SL	9,0# (9,0#) 9,0# (9,0#)	7,0 (7,2#) 7,2# (7,2#)	4,8 (6,2#) 5,2 (6,2#)	3,4 (4,6#) 3,8 (4,6#)
1,5	HD-S HD-SL	9,9 (11,7#) 11,0 (11,7#)	6,4 (8,5#) 7,0 (8,5#)	4,5 (6,9#) 4,9 (6,9#)	3,2 (5,5#) 3,6 (5,5#)
0	HD-S HD-SL	9,0 (13,6#) 10,1 (13,6#)	5,9 (9,6#) 6,5 (9,6#)	4,2 (7,2) 4,6 (7,3)	3,1 (5,4) 3,4 (5,4)
- 1,5	HD-S HD-SL	8,6 (14,2#) 9,7 (14,2#)	5,6 (10,0) 6,2 (10,0)	4,0 (7,0) 4,4 (7,0)	3,0 (5,3) 3,3 (5,3)
- 3,0	HD-S HD-SL	8,5 (13,9#) 9,5 (13,9#)	5,5 (9,8) 6,1 (9,9)	3,9 (6,9) 4,4 (7,0)	
- 4,5	HD-S HD-SL	8,6 (12,5#) 9,6 (12,5#)	5,5 (9,2#) 6,2 (9,2#)	4,0 (6,8#) 4,4 (6,8#)	
- 6,0	HD-S HD-SL	9,0 (9,6#) 9,6# (9,6#)	5,8 (6,8#) 6,4 (6,8#)		

The lift capacities are stated in metric tonnes (t) on the backhoe bucket's load hook, and can be lifted 360° on firm, level supporting surface.

Values quoted in brackets are valid for the undercarriage when in longitudinal position.

Capacities are valid for 600 mm wide triple grouser pads.

Indicated loads are based on ISO 10567 standard and do not exceed 75 % of tipping or 87 % of hydraulic capacity (indicated via #).

Maximum load for the backhoe bucket's load hook is 12 t.

Without bucket (0,95 m³/1,10 m³*), the lift capacities will increase by 860 kg/1185 kg*kg, without bucket cylinder, link and lever they increase by an additional 290 kg/490 kg*.

Lifting capacity of the excavator is limited by machine stability, hydraulic capacity and maximum permissible load of the load hook.

When lifting loads, the hydraulic excavator must be equipped with automatic check valve on its hoist cylinders and overload warning device according to European Standard, EN 474-5.

* values applicable only for 2,00 m stick

Lift Capacities with 6,05 m Gooseneck Boom and Heavy Counterweight



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- Check the electrical system regularly. Make sure that any problems, such as loose connections, burnt out fuses and bulbs, scorched or chafed cables are fixed immediately by an electrician or qualified personnel.
- Use only Original fuses with the specified amperage. Never use a different size or stronger fuse than the original fuse.
- On machines with electrical medium or high voltage systems:
 - If there is any problem with the electrical energy supply, turn the machine off immediately.
 - Follow established lockout / tag out procedures where applicable.
 - Any work on the electrical system may only be performed by a qualified electrician or qualified personnel under the guidance and supervision of an electrician, according to electro - technical regulations.
- If any work is required on any parts which carry current, use a second person to turn off the main battery switch, if necessary. Rope the work area off with a safety rope or chain, and set up warning signs. Use only insulated tools.
- When working on medium and high voltage components, shut off the voltage and connect the supply cable to the ground and ground the components, such as the condenser, with a grounding rod.
- Check all disconnected parts if they are truly free of current, ground them and close them off quickly. Insulate any close-by, current carrying parts.
- Hoses and lines must be replaced if any of the following points are found during an inspection (see guidelines ISO 8331):
 - Damage on the external layer into the inner layer (such as chaffing, cuts and rips);
 - Brittleness of the outer layer (crack formation of the hose material);
 - Changes in shape, which differ from the natural shape of the hose or line, when under pressure or when not under pressure, or in bends or curves, such as separation of layers, blister or bubble formation, crushing or pliers.
 - Leaks;
 - Non observance of installation requirements;
 - Damage or deformation of hose fittings, which might reduce the strength of the fitting or the connection between hose and fitting;
 - Any movement of hose away from the fitting;
 - Corrosion on fittings, which might reduce the function or the strength of the fitting;
 When replacing hoses or lines, always use Original replacement parts.
- Route or install the hoses and lines properly. Do not mix up the connections!
- Always take care to avoid torsional strain when installing a new hose. On high pressure hydraulic hoses, the mounting screws must be first mounted on both hose ends (full flange or half clamp) and tightened only thereafter.

On high pressure hoses having one curved end, always tighten first the screws on the curved hose end and only then the screws on the straight hose end.

Install and tighten the hose clips that may be mounted on the hose middle only when the both hose ends are already tightened.

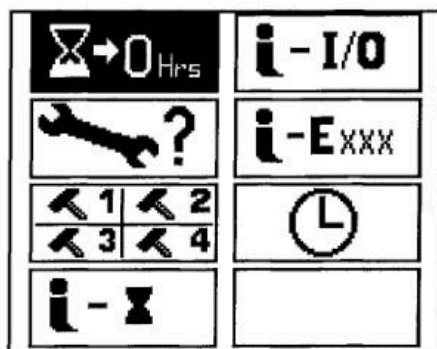
HYDRAULIC LINES AND HOSES

- Hydraulic lines and hoses may never be repaired!
- All hoses, lines and fittings must be checked daily, but at least every 2 weeks for leaks and any externally visible damage! Never check for leaks with your bare hands, use a sheet of paper or something else. Any damaged sections must be replaced immediately! Escaping oil can cause injuries and fires!
- Even if hoses and lines are stored and used properly, they undergo a natural aging process. For that reason, their service life is limited. Improper storage, mechanical damage and improper use are the most frequent causes of hose failures. Concerning the hoses, you must follow the safety regulations applicable to your work environment and job site and any federal, state and local safety requirements.
- Using hoses and lines close to the limit ranges of permitted use can shorten the service life (for example at high temperatures, frequent working cycles, extremely high impulse frequencies, multi shift or around the clock operations).
- Always install hoses so to avoid any friction with other hoses and parts.

We recommend to keep a distance between hose and other parts of at least one half of the hose outer diameter. Keep a minimum gap of 1/2 inch in any case.

After mounting a hose connecting two parts that are movable to each other, check during the return to service that the hose is not rubbing in the whole moving range.

Check daily that all flanges and covers are fixed correctly. It will prevent vibrations and damage during operation.



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INFORMATIONS PROVIDED IN THE MENUS OF THE LCD SCREEN

MENU SELECTION

Depressing the "MENU" key when the main screen is displayed shows the list of the accessible menus (see fig. 45).

The current menu selection can be changed by pressing the "UP" and "DOWN" keys (the selected menu is inverse displayed, as an example in fig. 45 the menu "reset hours" is selected).

When depressing the "MENU" key again, the inverse displayed function is branched out.

MENU **i-X** ("i - hours")

Information about operating hours for various components and movements

The Information screens 1 to 3 (fig. 46a to 48a) shows an overview about operating hours for various components, functional flows and operating modes.

As an example, the screen fig. 46a indicates the operating hours for:

- Diesel engine in mode P
- Diesel engine in mode E
- Diesel engine in mode F
- Diesel engine in mode L
- Diesel engine at maximum RPM
- Diesel engine at low idle
- Manual operation for Diesel engine RPM control

the screen fig. 46b the operating hours for:

- Attachment movements
- Travel movements
- indication for - normal
- increased speed

and the screen fig. 48a the operating hours for:

- swing movements
- additional attachment movements.

And the screen fig. 48b gives informations about the machine type and serial number and about the software version actually mounted to the machine.

The two indications behind "Nom" are for the rated RPM and for the number of teeth of the flywheel of the Diesel engine.

These both indications are determined by the position of a codeage bridge on the print plate U16 (BST regulator).

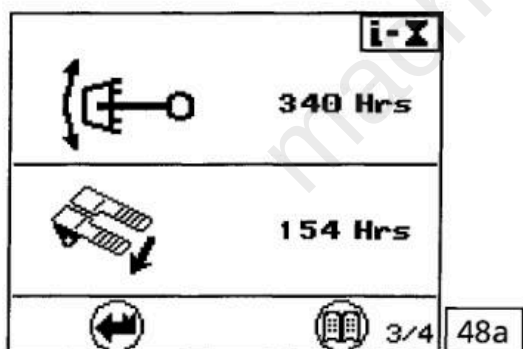
The last line provides indication for the momentaneous operating voltage



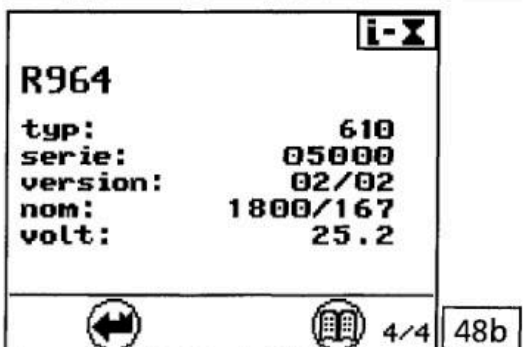
46a



46b



48a



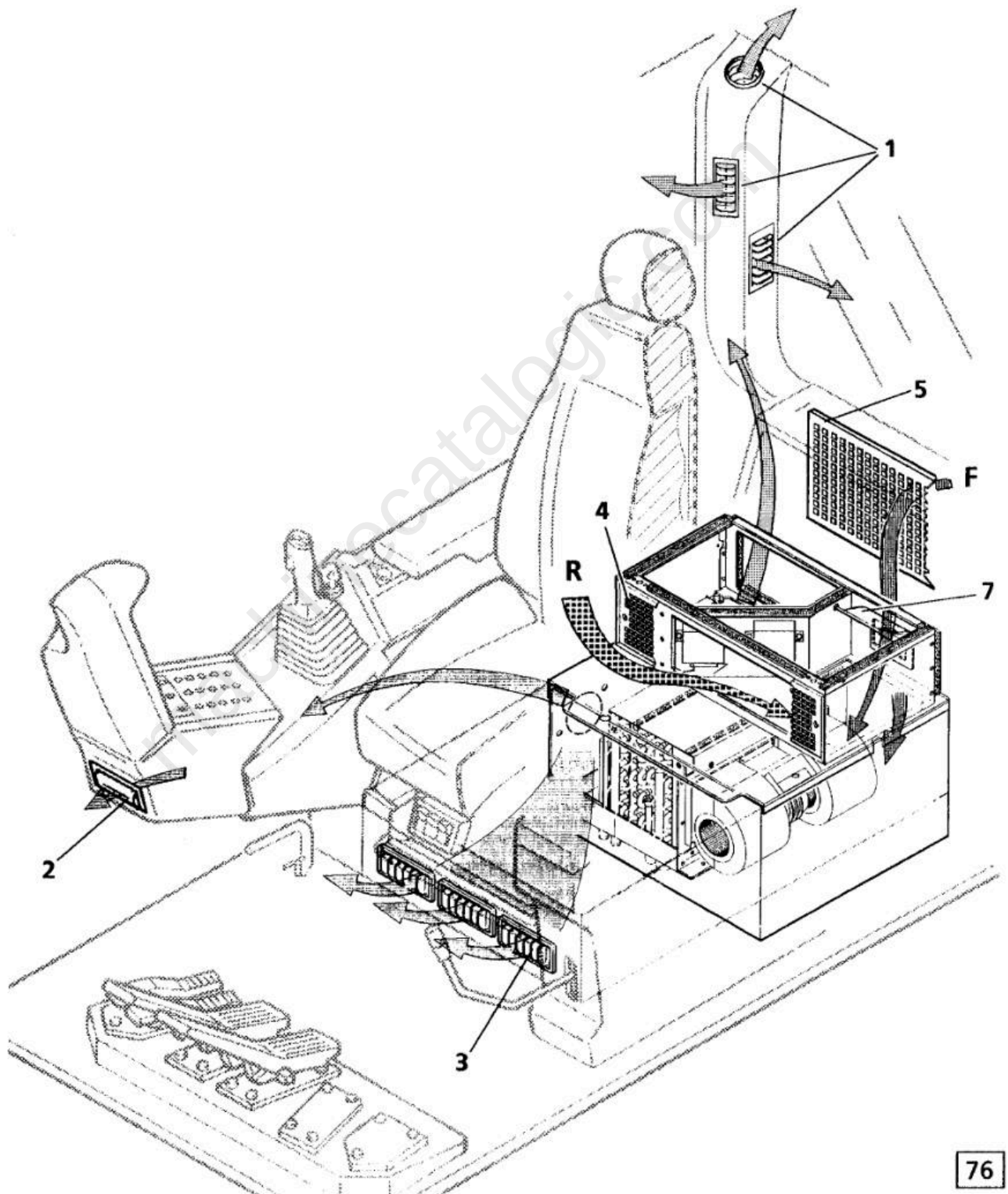
48b

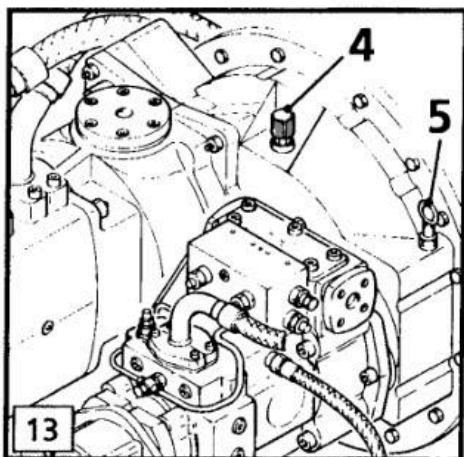
The air conditioner should only be turned on after the engine is running. This will prevent an overload on the starters and batteries.

The air conditioner may also be switched on in winter season to dehumidify the cab by high air moisture.

In this case switch on the air conditioner for a short time, until the inside of the cab is free of condensation.

Eventually, the air conditioner may be operated weakly during heating operation, so to obtain a desired reduction of the humidity rate inside the cab.



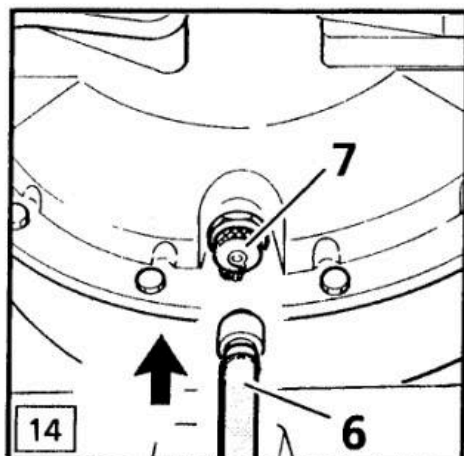


CHANGING THE OIL IN THE SPLITTERBOX

Fig. 13, pos. 4 shows the oil filler and bleeder screw of the splitterbox and pos. 5 shows the dipstick to check the oil level.

TO CHECK THE OIL LEVEL

Check the oil level a few minutes after turning off the engine.



TO DRAIN THE OIL

Drain the oil when the oil is at operating temperature. To drain, remove the cap on the drain 7 (fig. 14), install drain hose 6 and drain the oil into an appropriate container.

TO ADD OIL

Add oil to the oil level mark on the dipstick, run the engine for a few minutes, stop it and recheck the oil level.

See lubrication chart for oil quantities and specifications.

See maintenance chart for oil change intervals.

CHECKING TIGHTNESS OF TRACK PADS

Check mounting screws 5 weekly for tightness and, if necessary, retighten (Fig. 21).

Torque the track pad bolts :

- 3/4"-16 UNF -12.9 (chain D7) to 650 Nm (480 ft.lbs).
- M20×1,5 -12.9 (chain B60) to 800 Nm (590 ft.lbs).

CHECKING MOUNTING SCREWS OF TRAVEL GEARS AND SPROCKET WHEELS

This screws must regularly be checked and retightened.

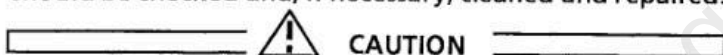
Torque the mounting screws of the travel gears onto the side frames (M20 -10.9, fig.22, pos.6) to 560 Nm (413 ft.lbs).

Torque the mounting screws of the sprocket wheels onto the travel gears (M20 -10.9, fig.22, pos.7) to 560 Nm (413 ft.lbs).

Torque the mounting screws of the hydraulic motors onto the travel gears (M20 -10.9, fig.22, pos.8) to 560 Nm (413 ft.lbs).

CLEANING THE TRACK COMPONENTS

At the end of a workday, the complete undercarriage should be checked and, if necessary, cleaned and repaired.



CAUTION

DO NOT operate machine if large rocks or pieces of wood, steel, wires or cable are wedged into the track components.

Do not allow mud, rocks, etc. to collect on track components.

Dried or frozen mud, as well as rocks or other debris in the track components could cause serious damage to the machine if operated, or if it is attempted to break the machine loose under engine power.

If the machine is frozen to the ground, heat the ground or the track pads to free the machine.

In freezing weather, park machine on planks or logs so the tracks will not freeze to the ground.

The machine can be supported and lifted slightly on each side with the attachment, so the tracks can be cleaned.

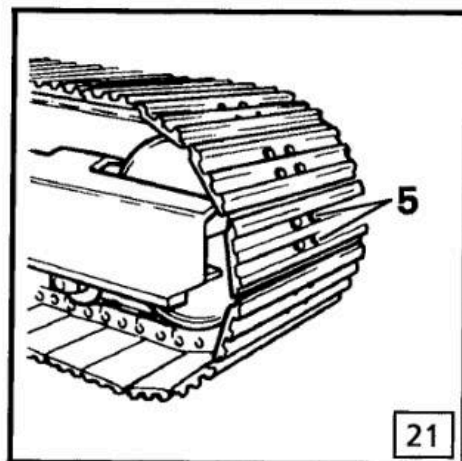
Clean the surfaces of the tension unit and apply grease.



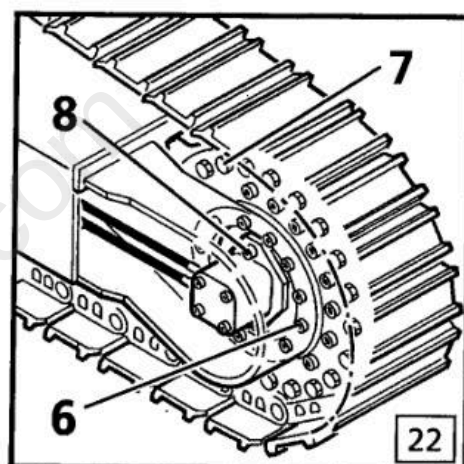
DANGER

Make sure the excavator is supported with wooden blocks.

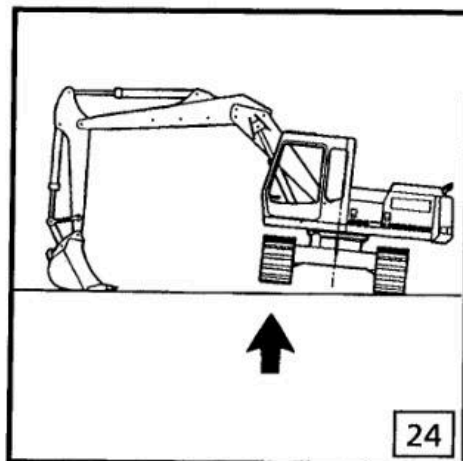
Notice : The track chain components of the machines working with their undercarriage the most of time underwater, are exposed to increased rust and premature wear. On these machines, the oil level in travel gears, track rollers and guide wheels must be checked daily. Weekly perform an oil analysis for these components to check the water content of the oil and the component wear. In addition, the oil change intervals must be reduced to 100 working hours.



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